

MURRAY ACRES ASSOCIATION (PWSNO 1090087) SOURCE WATER ASSESSMENT REPORT

December 16, 2002



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR MURRAY ACRES ASSOCIATION

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Murray Acres Association, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Murray Acres Association* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Murray Acres Association is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. A 10-inch cased well of unknown depth supplies drinking water to 6 year-round and 47 seasonal homes connected to the Murray Acres Association public water system. Murray Acres is located on Reeder Bay, about 3.5 miles east of Nordman, Idaho. The well is in a 3-foot deep concrete lined pit covered with a locked, wood framed well house that sits about 80 feet from the shore of Priest Lake. No well log for the Murray Acres well is on file with DEQ, so several construction features and lithologic details used to assess vulnerability to contamination are unknown.

Murray Acres was mostly in compliance with *Idaho Rules for Public Drinking Water Systems* when inspected during a sanitary survey in June 1999. The well casing needed to be extended to a minimum of 12 inches above natural grade and fitted with a vented, watertight well cap and other appurtenances on the discharge line; the pit needed to be drained to daylight; and the well needed to be evaluated for possible surface water influence. In September 1999 the Murray Acres board scheduled necessary improvements cited in the inspection report. The board also elected to sample the well and waters of Priest Lake to determine whether the well is surface water influenced. Results of those tests are not in the public water system file for Murray Acres.

Well Site Characteristics. Hydrologic sensitivity scores for a well are derived from the soil drainage classification inside the delineation boundaries and from information on the well log. Soils in the well recharge zone delineated for the Murray Acres well are generally poorly drained to moderately well drained. Soils in this drainage classification provide some protection against migration of contaminants toward the well. Soil characteristics at the well site are not known since the well log is unavailable.

Potential Contaminant Inventory. Land use inside the protection zone delineated for the Murray Acres well is residential and recreational. Potential contaminant sources inside the delineation boundaries include septic systems and surface waters of Priest Lake. Septic tanks and drainfields become a concern for ground water quality if their density exceeds 10 in 40 acres, or if a single system serves multiple users. In addition to microscopic organisms, septic systems can be a source of nitrates and other inorganic chemical contaminants.

Water Quality History. Murray Acres Association has had no water quality problems. In the period from April 1993 through April 2002 no quarterly samples tested positive for total coliform bacteria. Concentrations of nitrate detected in annual testing, 0.159 to 0.30 mg/l, have been insignificant.

Susceptibility to Contamination. An analysis of the Murray Acres well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. Conservative scores assigned to unknown risk factors added the most points to the final susceptibility sum. The ground water susceptibility worksheet for your well is on page 6. Formulas used to compute final scores and rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Murray Acres has a good water quality history. Necessary repairs are attended to promptly and testing is performed as required. Continuing to maintain and operate the system in compliance with *Idaho Rules for Public Drinking Water Systems* is the best drinking water protection for the association.

A voluntary measure every system should employ is development of an emergency response plan. There is a simple, fill-in-the-blanks form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

Murray Acres should also investigate ground water protection programs like Home*A*Syst. Home*A*Syst is designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Because Murray Acres may not have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighboring landowners to regulate land uses that can degrade ground water quality. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

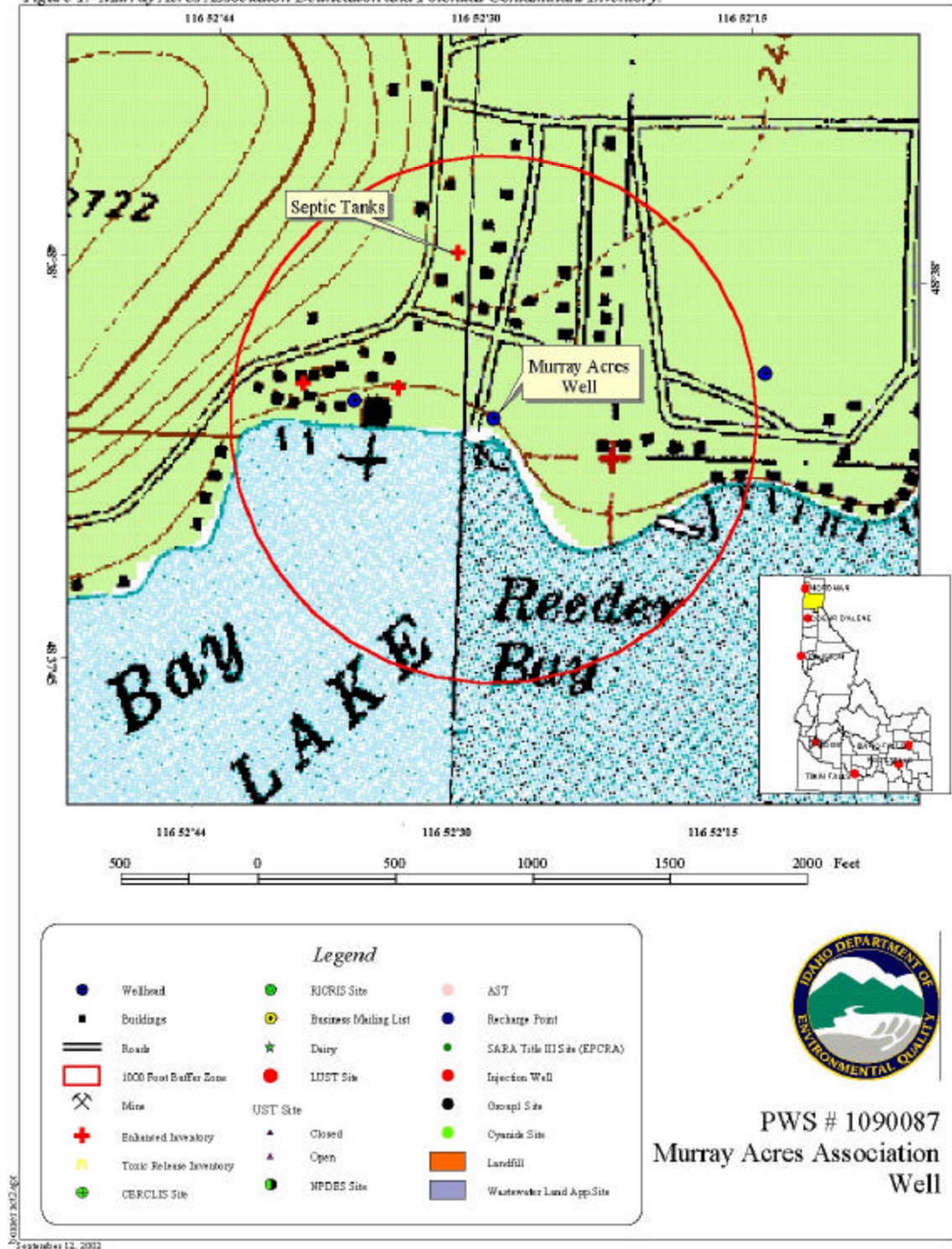
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: www.deq.state.id.us/water/water1.htm

Figure 1. Murray Acres Association Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

MURRAY ACRES ASSN INC

Well :

WELL #1

Public Water System Number :

1090087

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1. System Construction		SCORE			
Drill Date	UNKNOWN				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 1999				
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	UNKNOWN	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use Zone 1A	RESIDENTIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES. LAKE, SEPTIC SYSTEMS	1	0	0	2
(Score = # Sources X 2) 8 Points Maximum		2	0	0	4
Sources of Class II or III leacheable contaminants or Microbials	YES	1	0	0	
4 Points Maximum		1	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	0	0	4
Cumulative Potential Contaminant / Land Use Score		5	2	2	6
4. Final Susceptibility Source Score		9	9	9	10
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.